**REMARKS**

The Applicants request reconsideration of the rejection.

Claims 49-74 are pending.

Claims 49, 51-58, 60, 62-63, 65-70, 72, and 74 were rejected under 35 U.S.C. §102(b) as being anticipated by Carpenter, US 5,541,448 (Carpenter). The Applicants traverse as follows.

As previously argued, the present invention is directed to method of manufacturing a memory module, including steps of mounting a nonvolatile memory semiconductor chip and DRAM semiconductor chips on a module board, wherein the nonvolatile memory semiconductor chip has a lead terminal package, while the DRAM semiconductor chips are provided in a protruded terminal package. In a protruded terminal package, the semiconductor device has a size that approximates the size of the semiconductor chip itself in the device. These devices can thus be mounted more densely on the memory module. However, the prior art has suffered from difficulty in mounting these devices, which have had a relatively narrow pitch between bonding terminals.

In the manufacturing method as claimed, however, the "first semiconductor devices" have the protruded terminals as external terminals, and include a rewiring layer for

electrically connecting the protruded terminals to bonding electrodes of the DRAM semiconductor chips. The method sets the pitch of the protruded terminals to be wider than the pitch of the bonding electrodes so that the pitch of the protruded terminals suits the wiring rule on the module board by providing the rewiring layer connecting the bonding electrodes to the protruded terminals. The protruded terminals may be used for mounting with electrical connection to the module board, using the wider-pitch wiring rule of the module board and necessitating no modification to the wiring rule. At the same time, mounting the protruded terminals with the wider pitch is more convenient and results in fewer defects then the mounting of the narrower-pitched bonding electrodes according to the prior art.

In addition, each claim requires that a second semiconductor device of the lead-terminal type (having "outer leads protruding outwardly from a side surface of the package body") be mounted on the same module board with the first semiconductor devices of the protruded terminal type. The prior art of record does not show a memory module mounted with both first and second semiconductor devices of the protruded terminal type, and lead terminal type, respectively. Mounting both types of devices on a single memory module is advantageous compared to forming all of the devices as

protruded terminal type devices because some device products are cost-effectively manufactured and provided as lead terminal type devices than as protruded terminal type devices. For example, products whose wafer yield is relatively low are not cost-effectively manufactured at the wafer level. Further, products that are not produced in large quantity are better produced as lead terminal packages. In addition, devices manufactured of small chips but having many terminals are better formed as lead terminal packages because the electrode pads and bump electrodes cannot be formed after rewirings are formed in protruded terminal devices. Therefore, a module board which mounts memory chips such as DRAM chips, when provided also with lead-terminal type packages as disclosed, can be prepared quite cost effectively. The Applicants direct the Examiner to the specification for the discussion set forth between pages 23 and 26.

Furthermore, as claimed in Claim 71 (for example), the manufacturing method of the present invention permits the mounting step to include a step of simultaneously soldering the first and second semiconductor devices to the module board, which also enables the wiring rule of the module board to be broadened.

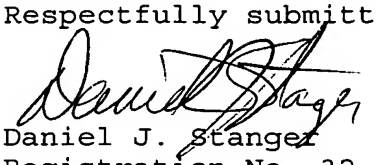
Carpenter is directed to an electronic circuit card that shows the mounting of semiconductor chips on both sides of a

substrate. Carpenter, however, does not teach that the semiconductor devices 58 have protruded terminals as external terminals, or a rewiring layer for electrically connecting the protruded terminals to bonding electrodes of the chips and setting the pitch of the protruded terminals to be wider than the pitch of the bonding electrodes so that the pitch of the protruded terminals suits the wiring rule on the substrate. Accordingly, the claims patentably define over Carpenter.

Claims 50, 59, 61, 64, 71 and 73 were rejected under 35 U.S.C. §103(a) as being unpatentable over Carpenter in view of Elenius et al. US 6,287,893 (Elenius). Elenius discloses a method for forming a chip scale package which employs flip chip integration techniques. Like Carpenter, however, Elenius does not disclose the combined mounting of both protruded terminal type and lead terminal type semiconductor devices on a single module board, wherein the protruded terminal type devices have protruded terminals as external terminals and a rewiring layer for electrically connecting the protruded terminals to bonding electrodes of the chips and setting the pitch of the protruded terminals to be wider than the pitch of the bonding electrodes so that the pitch of the protruded terminals suits the wiring rule on the module board. Therefore, the combination of Carpenter and Elenius does not reach the claimed invention.

In view of the foregoing amendments and remarks, the Applicants request reconsideration of the rejection and allowance of the claims.

Respectfully submitted,



Daniel J. Stanger
Registration No. 32,846
Attorney for Applicants

MATTINGLY, STANGER & MALUR, P.C.
1800 Diagonal Road, Suite 370
Alexandria, Virginia 22314
Telephone: (703) 684-1120
Facsimile: (703) 684-1157
Date: September 3, 2004